Ground-water Movement in Auglaize and Mercer Counties, Ohio

by

Karen S. Gottschalk

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The Ohio State University

Thesis Advisor

Department of Geology
and Mineralogy

ACKNOWLEDGEMENTS

I would like to thank the people who helped me get through this thesis. Thanks to Robert Voisard, Tim and Craig Gottschalk for the many hours they spent helping me measure wells, to Sally Buck for supplying me with her thesis data sheets, to Krista Bailey for the ice cream break, to Jeff Gottschalk and Steve Putman for the use of their computers and printers. Thanks.

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INTRODUCTION

Study Area Description

Auglaize County is located in west-central Ohio (Plate A-1). The most prominent feature of the area is Grand Lake Saint Marys. In 1845, the lake was built to serve as a water source for the Miami-Erie Canal. To construct the lake, Beaver Creek on the west end was dammed along with Chickasaw Creek on the east. The lake covers an area of 21 square miles at approximately 870 mean sea level. Average depth of the state-owned lake is 6.8 feet, with a maximum depth of 22 feet. The lake is used primarily for recreation purposes.

It is surrounded by areas of agricultural, recreational, and seasonal and permanent residences. Celina, to the west, and St. Marys, to the east, are the principal urban areas on the lake, with 1980 populations of 9,127 and 8,368, respectively. Construction on Lake St. Marys was begun in 1837 and was completed in 1845 at a cost of $528,000 (Clark, 1960). The lake's original surface area of 17,500 acres has been decreased by urban development and sedimentation to an area currently estimated at 13,920 acres. In the 1890's, oil was discovered in the rocks below the lake and, for a time, the lake was dotted with oil derricks. A pile of rocks near the center of the lake marks the position of one of these oil derricks.

Climate

The climate of the area is continental, characterized by abundant precipitation, 37 inches annually, a wide range of mean monthly temperatures, 49.7 degree Fahrenheit in January and 85 degree Fahrenheit in July, and relatively long growing seasons. Evaporation rates for the area range from 33 to 34 inches. Normal rainfall helps maintain a relatively constant water level in the lake.

Soils

The study area is dominated by Blount-Pewamo and Blount-Glynwood soil associations (Table B-1). The Blount-Pewamo correspond to glacial drift areas and occurs on sloping terrains. Blount-Glynwood soils correspond to terminal moraines.

The till in the area is generlly unstratified, and contains gravel, cobbles, and boulders of all sizes. The soils have a low to very low permeability and coupled with a high seasonal water table, the soils are seasonally wet. Plates B-2a and B-2b show the areas in which the soils are found.

Surface Hydrology

The study area is positioned between the Wabash and Maumee River Basins on a watershed divide. Most of the study area drains to the south. Grand Lake is fed by six tributary streams: Barnes Creek, Beaver Creek, Chickasaw Creek, Coldwater Creek, Little Chickasaw Creek, and Prairie Creek. Their estimated average annual flow to the lake is 102.4 cubic feet per second (Louisville District Corp of Eng., 1981). Water is discharged from the western end of the lake into Beaver Creek and ultimately into the Wabash River, 2.8 miles from the Indiana border. The eastern flow is discharged into the St. Marys River via the St. Marys feeder canal.

Population Characteristics

The area of study includes parts of Auglaize and Mercer Counties. The main towns in the study area are Celina, St. Marys, Coldwater, Minster, and New Bremen, in order of decreasing population. These two counties encompass approximately 840 square miles, including 21 square miles occupied by Grand Lake St. Marys. In 1980, the total populatioon of these two counties was 80,703, with 42,461 in Auglaize County and 38,242 in Mercer County. The work force in 1980 for Mercer and Auglaize Counties was 46.4 percent and

39 percent of their respective populations. Land use within these counties is predominantly agricultural: 95 percent in Mercer and 90 percent in Auglaize County.

GENERAL GEOLOGY

Auglaize County lies on the eastern flank of the northward plunging Cincinnati Arch. The limbs, made up of Silurian shales and limestones, dip away from the axis at an angle less than 1 degree. These rocks rarely crop out in the study area due to thick coverage of glacial till. The following well log is from an oil well drilled near St. Marys in the late 1800's (Bownocker, 1903):

Drift	110 Ft.
Niagara Limestone	175 Ft.
Niagara, Clinton, Cincinnati (Hudson River), and Utica Shales	877 Ft.
Trenton Limestone	1,162 Ft.

Trenton Limestone

The Trenton Limestone, with its type locality in Trenton, New York, is an important formation which extends over much of the eastern United States. This formation is highly fossiliferous and was the oil production zone which made north-western Ohio historically famous. In Auglaize and Mercer Counties, the formation is generally 1,000 to 1,500

feet in depth below the surface. It is generally 100 to 160 feet thick. The Trenton is a true dolomite in the study area with a magnesium carbonate content of 23%; pure dolomite has a magnesium carbonate content of 45.73% (Stout, 1941). Elsewhere in Ohio, the Trenton is a dolomitic limestone with a lower magnesium carbonate content. The Trenton is a granular, to coarsely crystalline, high porosity dolomite; its upper layers are carbonaceous.

Utica Shale

The Utica Shale is a black shale which varies over the study area with an average thickness of 300 feet. This shale is crumbly, mostly of dark-blue or brownish-black color, and often bituminous in character (Williamson, 1905). It sparingly contains coal seams in which very few fossils are found. The Utica Shale conformably overlies the Trenton Limestone.

Hudson River Series

These formations consist of soft, blue shale which becomes darker as it approaches the Utica Shale. In southern Ohio, it becomes a hard blue limestone. The Hudson River Series ranges in thickness from five hundred to six hundred

feet throughout the study area. The formation contains abundant fossils.

Clinton Group

At its type locality near Rochester, New York, the Clinton Group is a shaley sandstone. However, in Auglaize County, the group is a highly crystalline limestone. The limestone varies in magnesium content which never exceeds 12 percent of the rock's composition. In Auglaize County, the group varies in thickness from 50 to 100 feet.

Niagara Formation

This formation is named after an exposure in New York at the Niagara Falls, It varies in thickness in Auglaize County from 200 to 300 feet. It underlies glacial drift in the townships of Washington, Jackson, German, and St. Marys. It is highly fossiliferous and where not covered by till in south-western Ohio, it is planed and striated by glacial action. The limestone is slightly weathered, it contains many caverns, joints, and fractures. The limestone is a bluish-gray color.

Wabash Moraine

Auglaize and Mercer counties are covered by glacial till from the Wisconsinan Stage of glaciation. The main topographic feature of the area is the Wabash Moraine. The moraine can be traced east from the Scioto River Basin to the west as far as Indiana where it is closely associated with the Fort Wayne Moraine. Within Auglaize County, the moraine follows a course south of west along the north side of the Auglaize River. At Wapakoneta, nine miles west of St. Marys, the Auglaize River turns northward through the moraine, whereas the moraine continues westward to St. Marys and beyond. The moraine continues along the north shore of Grand Lake St. Marys and Big Beaver Creek to the Wabash River (Leverett, 1902).

The moraine throughout much of its extent has a relief of only 30 feet, ranging from a high of 60 feet to a low of less than 20 feet. In Auglaize County it represents a bluff-like feature which agricultural activities and construction have leveled to a slope that is not a striking feature due to its broad slope. On the inner border, there is no abrupt rise but a gradual transition from the till plain to the top of the moraine. The outer border is more abrupt throughout the extent of the moraine. Within the study area, the moraine

ranges in altitude from 910 feet at Celina, to 850 feet near St. Marys (Leverett, 1902).

The moraine is predominantly made up of till, with sparse areas of gravel. Thin clay soils occupy the moraine whereas deeper, darker soils are found on the plains. The till is of a yellow-brown color at the surface, at a depth of 10 to 15 feet it becomes a gray color. The few boulders which are found on the moraine are composed mainly of granite. These boulders are rounded and are very sparsely striated.

Till Plains

On the till plains of Auglaize and Mercer Counties there are few rocks larger than gravel size. The soils of this area are thick, black, and clayey. There is poor drainage through this clay soil. Two separate ice advances are recorded by the presence of widespread deposits of gravel beneath the till. On areas of bedrock which were former uplands, till is generally 100-feet thick or less, whereas in areas of ancient drainage valleys, the till is more than 400-feet thick. In these valleys, the upper 200 feet of drift is till. Below this depth, the valley contains extensive deposits of clay, which, in places, is interbedded with layers of fine sand. This thick clay and its associated fine sand has been named Minford silt, with its type locality

in the Teays Valley in southern Ohio (Norris and Spicer, 1958).

Teays River Valley

The city of St. Marys and Grand Lake St. Marys directly overlie the Teays River Valley (Plate C-1). This ancestral drainage is now filled with unconsolidated gravel, clay, and sand (Plate C-2)

Through oil-well drilling, the theory of pre-glacial drainage in western Ohio was first brought to light. These early geologists recognized the occurrence of thicker deposits of till in small, distinct, relatively uniform areas because of inconsistencies in the depth of till in juxtaposed well logs. Today the Teays River Valley and other preglacial drainage systems have been mapped more thoroughly because of advances in resistivity logs, greater well control, and use of water-well logs.

The floors of these preglacial drainage valleys are very flat and well-graded. They represent a mature drainage system and form a dendritic system eroded by normal stream action in Pre-Pleistocene time. The system was abandoned when glacial advances diverted the water into new stream beds.

The Teays Valley, named after a deserted valley segment

in St. Albans, West Virginia (Norris and Spicer, 1958) is the main drainage valley of the system. The ancient Teays River originated in the Piedmont Plateau of Virginia and North Carolina east of the Blue Ridge escarpment at the close of the Tertiary Period and had the elevation of a peneplain. In its upper reaches it flowed in the courses now occupied by the Kanawha River system. Ten miles south of Portsmouth, Ohio, the course of the Teays was generally the same as the present day Ohio River as seen in the high terraces and abandoned valleys. From Portsmouth, the course of the Teays was northward through a now abandoned valley to Waverly, Ohio (Tight, 1903). The abandoned valley now roughly parallels in the present day Scioto River Valley. The rest of the Teays River Valley was not positively determined until some years later due to the mantle of glacial drift which completely buried it in western Ohio and Indiana. Stout, Ver Steeg, and Lamb (1943) traced the Teays on the basis of well records through western Ohio. The Teays River Valley has been traced across Ohio, through Indiana and central Illinois to the Mississippi River Valley (Horberg, 1950). The elevation of the valley in Auglaize County has been determined to be 460 feet below Grand Lake St. Marys.

The configuration of the channel has been determined in Madison County (see Plate A-1) using resistivity logs. On both sides of the valley, the walls descend a total of 200 feet over a distance of 1,800 feet (Norris and Spicer, 1958).

The sides of the river valley form a narrow, gorge-like valley in areas of limestone bedrock, but in southern Ohio where the bedrock is primarily of more resistant shales and sandstone, the valley is much broader.

The sediment filling the Teays in Madison County is a blue gray to brown clay which is soft and plastic. The composition of the clay is chlorite and illite, and contains a small amount of quartz. The Minford silt is closely associated with lenses of fine-grained sand in the buried valley. These sand lenses are not uniform in extent, or in vertical position relative to depth. These coarser materials, relative to the extensive clays, may be expressions of deltas formed by sediment-laden streams entering the ice-dammed river system. In the St. Marys area, extensive deposits of well-sorted sands and gravels also occupy the abandoned Teays River Valley (Plate C-2). These materials, due to their permeability and high storativity, provide high water yields. The city of St. Marys utilizes this water supply, receiving up to 900 gallons per minute from one of its two gravel wells.

HYDROGEOLOGY

Ground-water resources in the study area consist of two separate aquifers. One being the Niagara Group limestones

and dolomites, and the other resource being the pre-glacial Teays River Valley.

The limestone aquifer is the most reliable of the two water sources. The majority of domestic and municipal wells within the study area are screened in this artesian aquifer. Yields of as much as 400 gallons per minute have been obtained when wells encounter the larger solution channels within the dolomite (Kostelnick, 1982). This dolomite aquifer, which is a part of the Niagara Group, is characterised by a complex network of fractures, solution channels, and joints. Availability of water in the study area depends on recharge infiltration through the overlying glacial till. Yields from well fields in the area vary widely due to varying infiltration rates depending on the permeability of the glacial till (Louisville Corp of Eng., 1981).

The other major source of ground-water in the study area is the buried Teays River Valley. In Mercer and Auglaize Counties, the pre-glacial drainage is filled with well-sorted sands and gravel. These deposits within the finer clay sediments filling the channel yield high water quantities. The city of St. Marys has two such wells screened within these lenses. The wells, 332 feet and 320 feet deep, have capacity discharge rates of 500 and 900 gallons per minute, respectively (data from the City of St. Marys Water Department).

GENERAL THEORY

Ground-water Movement

Water levels within wells of the study area were measured with an electric tape to determine the depth to the water table (see well logs). These depths were then subtracted from the collar elevations of the respective wells to determine potential head for the aquifer. These data were plotted on a map and contour lines were drawn (Plate D-1).

These equipotential lines can then be used to determine the direction of ground-water movement. This direction is a vector and is equal to the gradient of hydraulic head, the change in head over a specified distance:

$$\text{grad } h = dh/ds$$

In isotropic aquifers, the equipotential lines are evenly spaced and parallel, flow is perpendicular to these lines. As seen by the configuration of the equipotential lines on plate D-1, the aquifer in the study area is relatively anisotropic. The flow is, therefore, oblique to the equipotential lines, but not parallel to them (Fetter, 1980). The average direction of regional

ground-water flow in the study area is almost directly north.

Laidlaw Landfill

A landfill lies within the study area in Mercer County, Franklin Township (Plate D-1). This landfill is lined with the natural in-situ glacial clay liner. Municipal wastes from Celina, Coldwater, and the other smaller neighboring villages are deposited within it. A redesign of this facility was submitted to the owners, Laidlaw Waste Systems Inc., in 1985.

CONCLUSION

Leachates from this landfill, should they reach the highly fractured limestone aquifer, would travel toward the north. The velocity at which the water will travel can be calculated using Darcy's equation and taking into account the effective porosity of the aquifer; this is termed the seepage velocity:

$$Vs = \frac{(K\ dh)}{(ne\ dl)}$$

where:

- vs = seepage velocity
- K = permeability
- dh/dl = hydraulic gradient
- ne = effective porosity

An effective porosity of 5% and a value of 10-1 (gal/day/ft2) for the permeability were used to characterize the aquifer in the study area. These values were assumed based on average literature values for limestone. The conservative seepage velocity for possible contaminants was calculated to be 2.3 x 10-3 feet/day (dh/dl = 1.15 x 10-3). This velocity can then be used to determine the amount of time the contaminants would require to reach the lake, and, subsequently, the creeks which drain the lake. This time, using the distance from the landfill to Montezuma Bay, directly north of the landfill (13,042 feet), was calculated to be 15,578 years.

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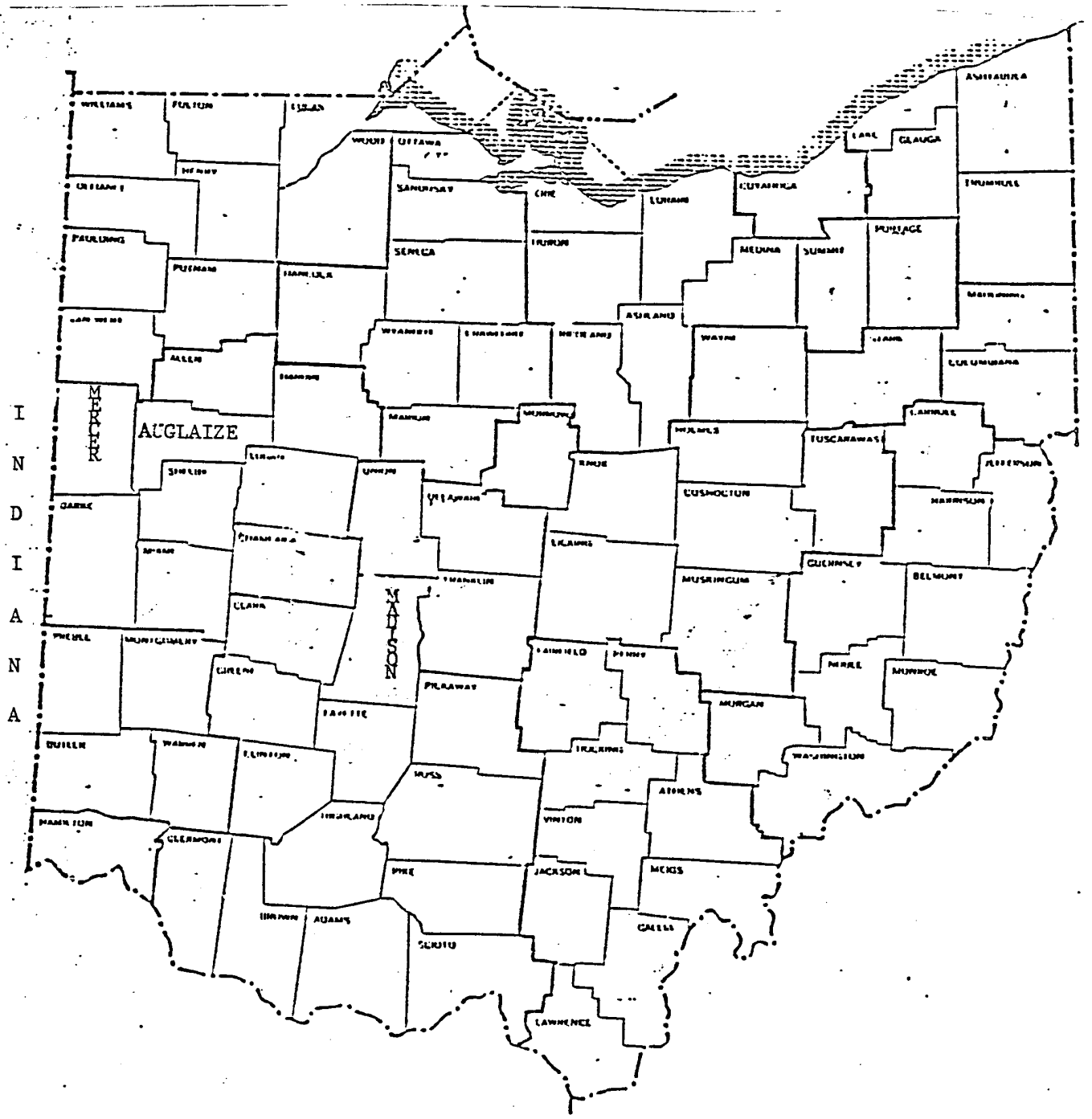


PLATE A - 1: Regional Map of Ohio and Indiana. (Unknown reference)

TABLE B-1

SOIL ASSOCIATION CLASSIFICATION
MERCER AND AUGLAIZE COUNTIES, OHIO

LEGEND

1 Blount-Pewamo Association. Nearly level to gently sloping, somewhat poorly drained to very poorly drained upland soils formed in silty clay loam or clay loam glacial till.

2 Blount-Glynwood Association. Gently sloping to sloping, somewhat poorly drained to moderately well drained upland soils formed in silty clay loam or clay loam glacial till.

3 Montgomery-McGary Association. Depressional to gently sloping, very poorly drained to somewhat poorly drained soils of upland flats formed in clayey, water-deposited sediments of former glacial lake basins.

4 Defiance-Wabash Association. Mostly level, somewhat poorly drained to very poorly drained soils formed in clayey, recently deposited sediments on flood plain.

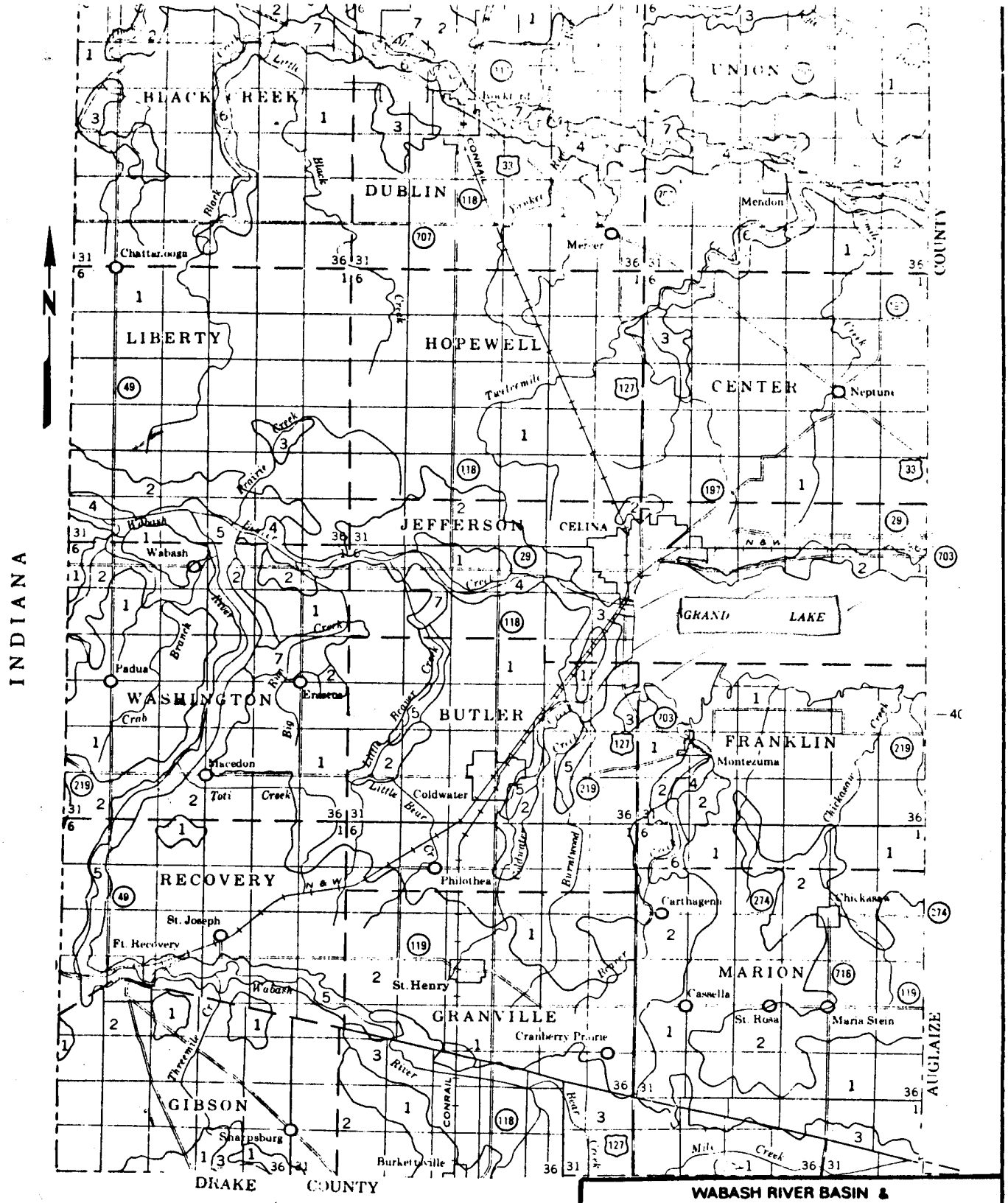
5 Genesee-Shoals Association. (Mercer County) Mostly level, well drained to somewhat poorly drained soils formed in loamy, recently deposited stream sediments on flood plains.

Montgomery Association. (Auglaize County) Nearly level, very poorly drained soils formed in clayey, glacial lake-deposited sediments.

6 Sloan Association. Mostly level, very poorly drained soils formed in loamy, recently deposited stream sediments on flood plains.

7 Millgrove-Digby-Digby Variant Association. (Auglaize County) Nearly level, very poorly drained and somewhat poorly drained soils formed in loamy or clayey material overlying poorly sorted sand and gravel.

9 Shoals-Genesee-Sloan Association. (Auglaize County) Nearly level, somewhat poorly drained, well drained and very poorly drained soils formed in loamy and sandy, recently deposited alluvium.



SOURCE: Adapted from "General Soil Map, Mercer County, Ohio," U.S. Soil Conservation Service and Ohio Department of Natural Resources, 1978.

See Legend, Table B-1

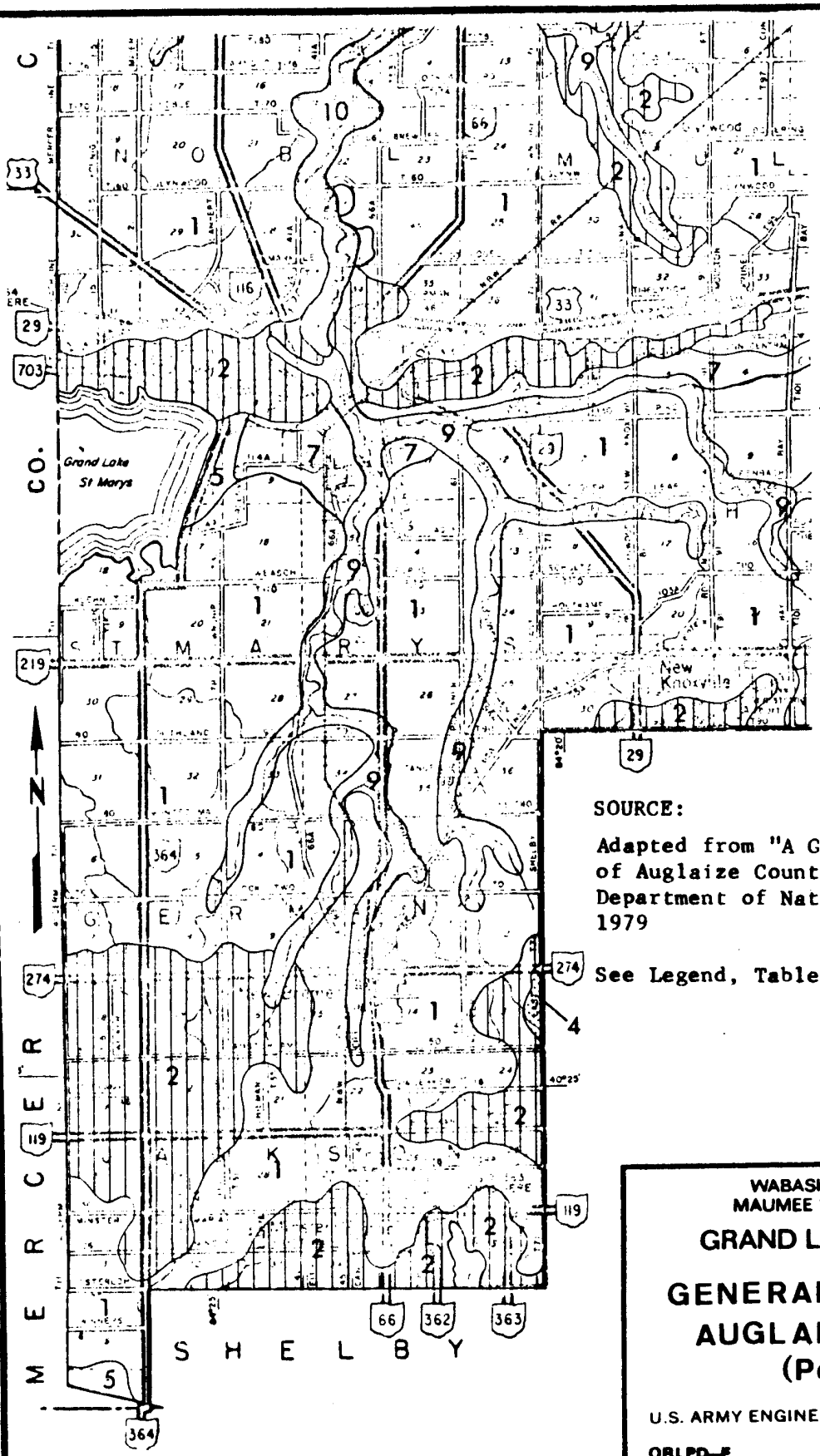
WABASH RIVER BASIN &
MAUMEE RIVER BASIN, OHIO

GRAND LAKE ST. MARYS

GENERAL SOIL MAP
MERCER COUNTY, OHIO

U.S. ARMY ENGINEER DISTRICT, LOUISVILLE, KY.
ORLPD-F AUGUST 1981

PLATE B-2a



SOURCE:

Adapted from "A General Soil Map of Auglaize County, Ohio" Department of Natural Resources, 1979

See Legend, Table B-1

WABASH RIVER BASIN & MAUMEE RIVER BASIN, OHIO

GRAND LAKE ST. MARYS

GENERAL SOILS MAP AUGLAIZE COUNTY (Portion)

U.S. ARMY ENGINEER DISTRICT, LOUISVILLE, KY.

ORLPD-F

AUGUST 1981

PLATE B-2 b

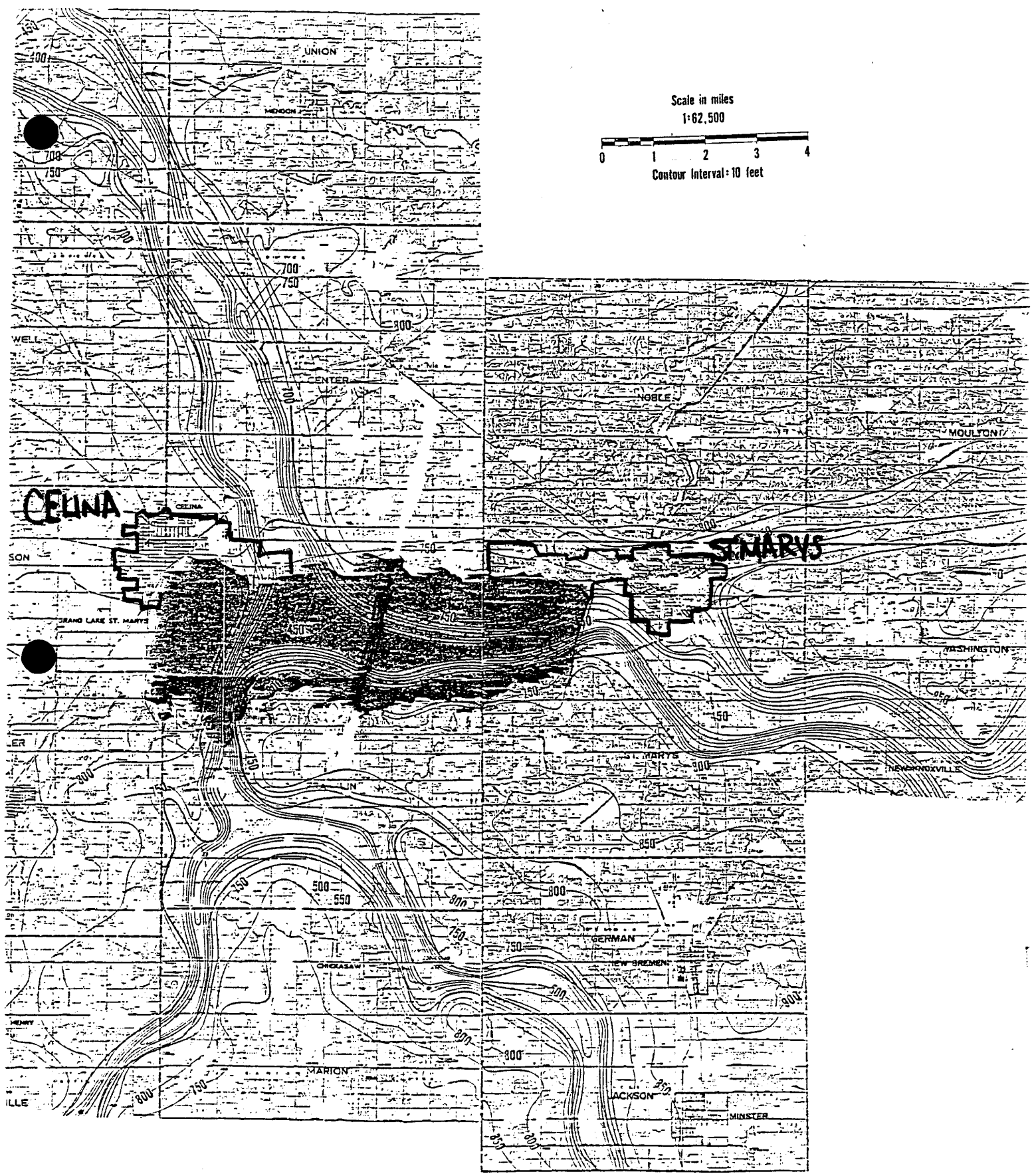


Plate C - 1: Bedrock configuration of Teays River Valley (Kostelnick, 1981)

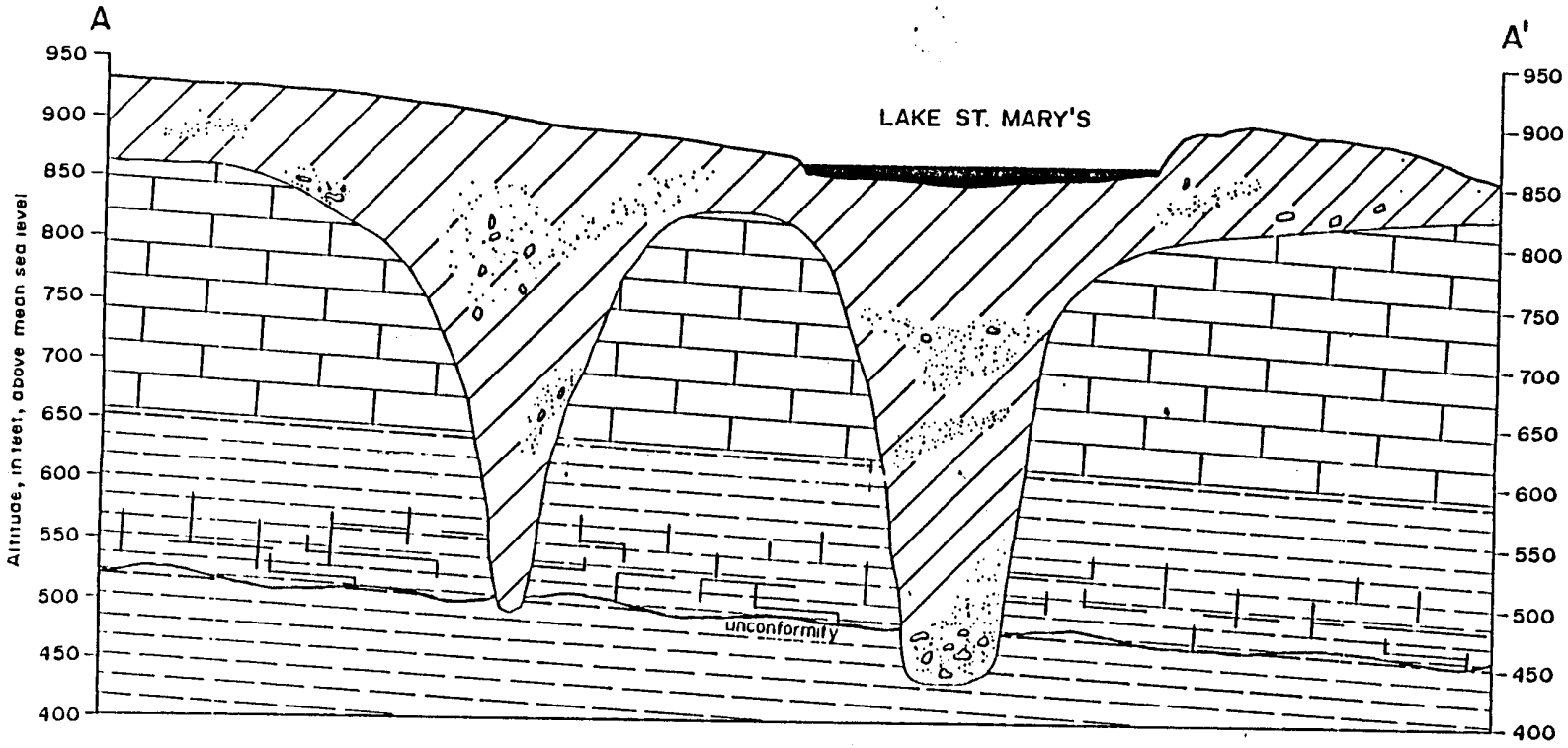
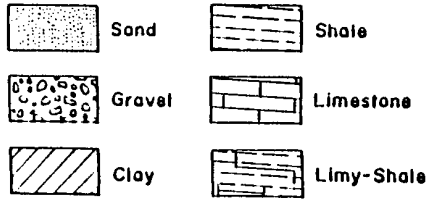
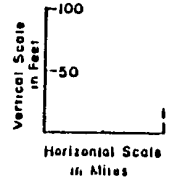


Plate C-2: CROSS SECTION FROM A TO A' SHOWING THICKNESS OF MATERIAL IN BURIED VALLEYS (After Kostelnick, 1982)





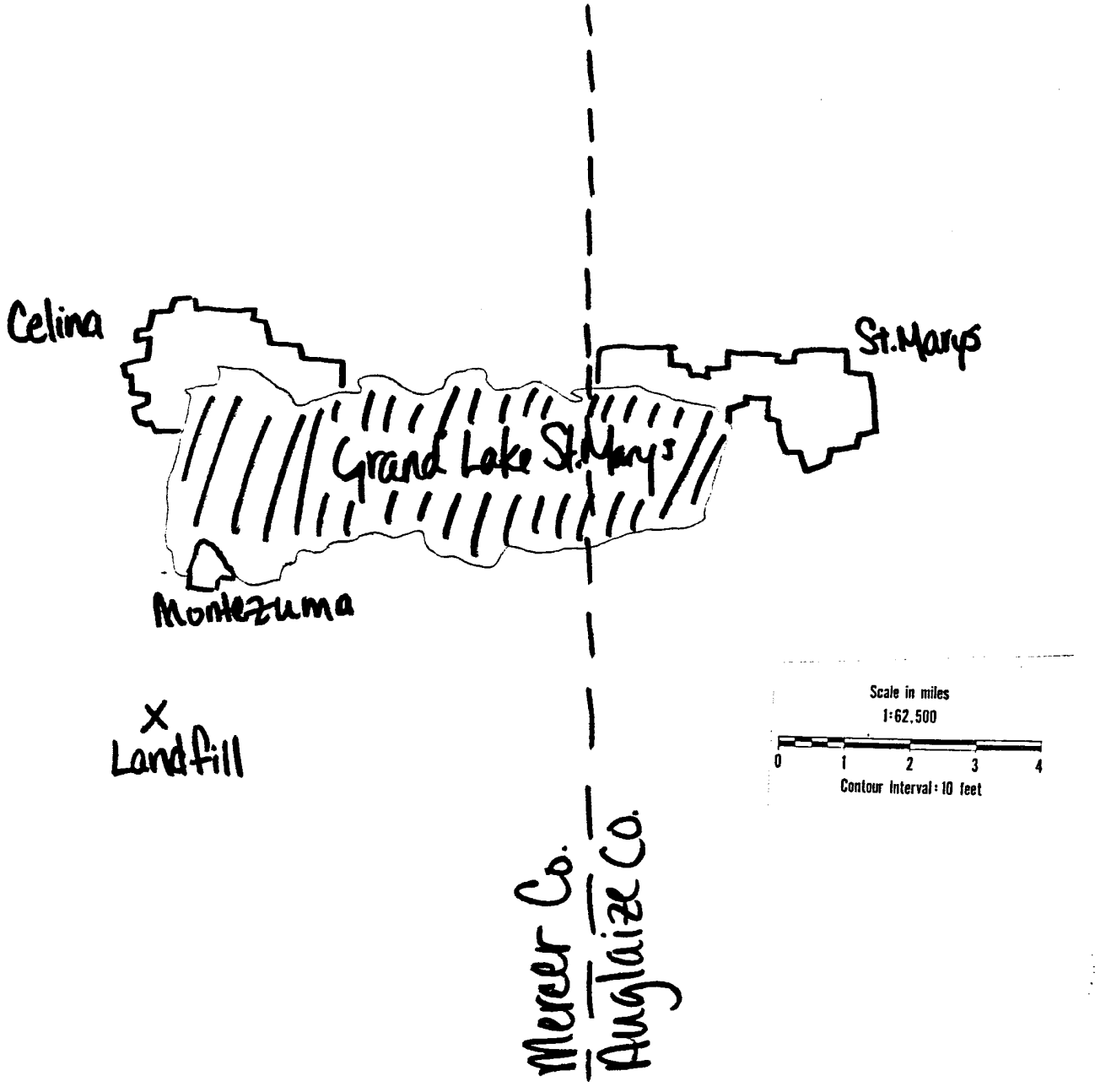
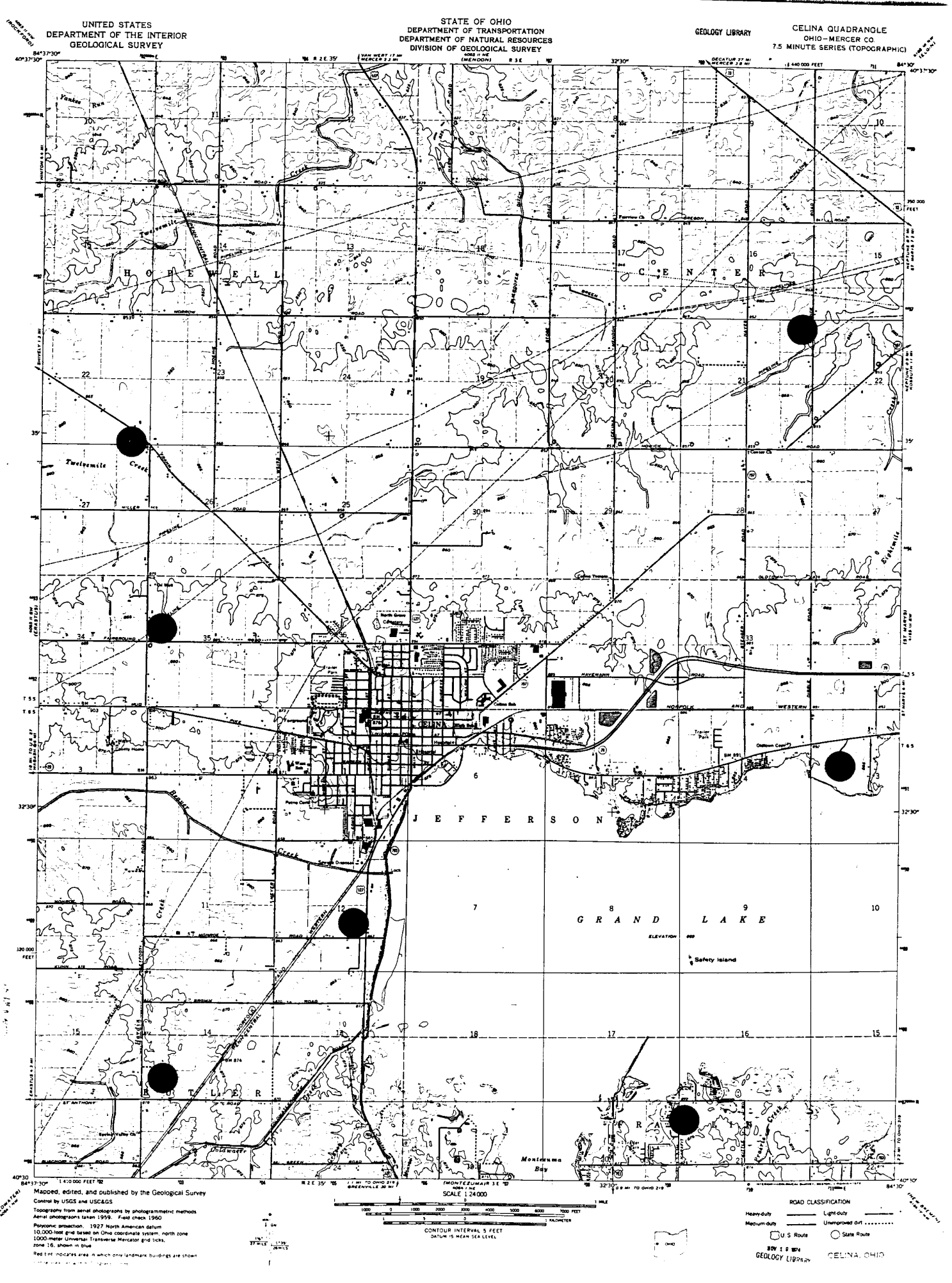


PLATE D - 1: Map showing location of Laidlaw Landill, Mercer County
(After Kostelnick, 1981)

STUDY AREA MAPS
(Black dot represents location of wells)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Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1959. Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on Ohio coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue
Red tint indicates area in which only landmark buildings are shown
SCALE 1:24000
CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL
ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
U.S. Route
State Route
NOV 18 1974
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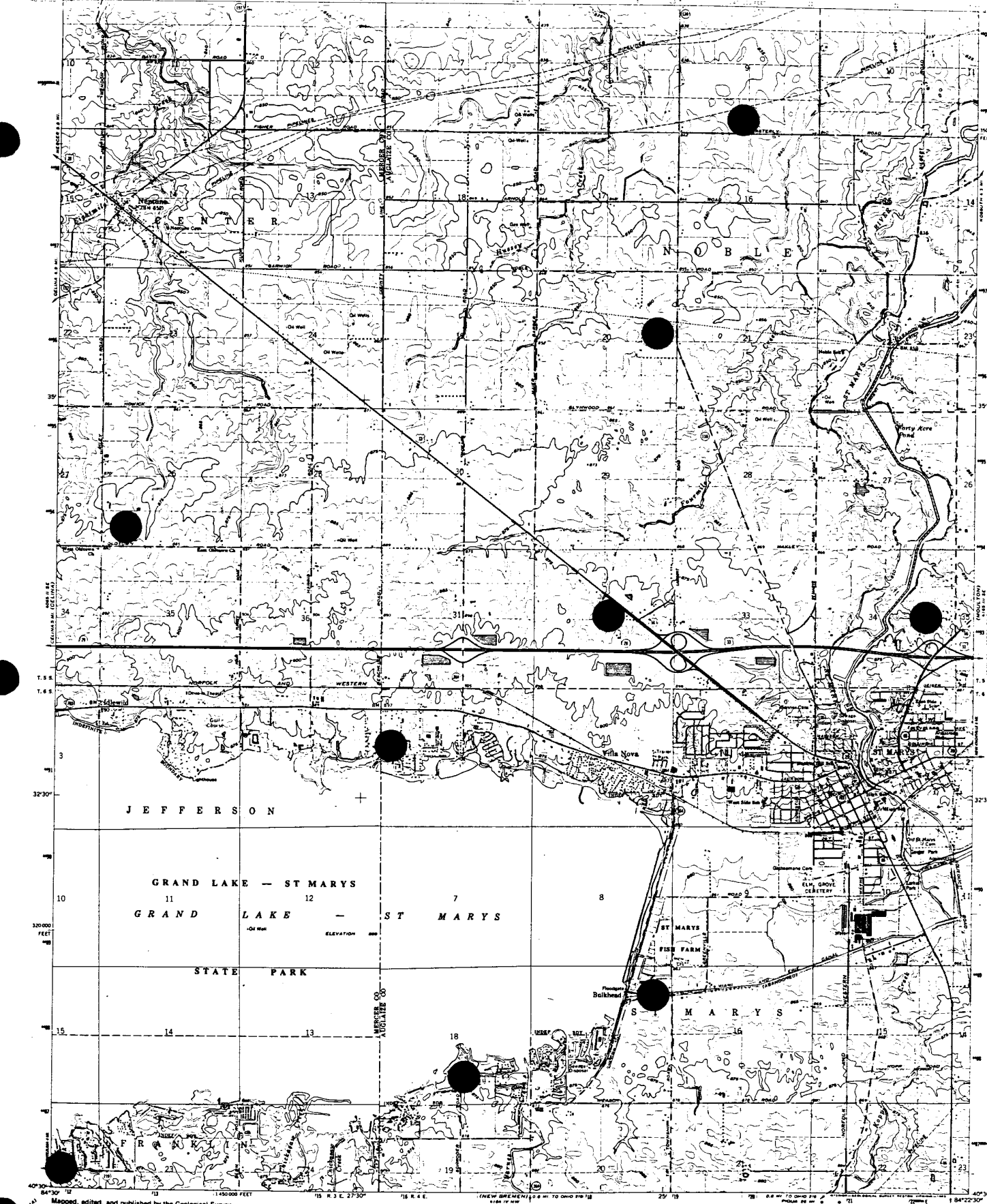

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Topography by photogrammetric methods from aerial photographs taken 1959. Field checked 1960

Polyconic projection. 10,000-foot grid ticks based on Ohio coordinate system, north zone. 1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue. 1927 North American Datum

To place on the predicted North American Datum 1983 move the projection lines 1 meter south and 5 meters west as shown by dashed corner ticks

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

Red tint indicates areas in which only landmark buildings are shown

Entire area has online Congress Lands. Land lines based on the First Principal Meridian

There may be private inholdings within the boundaries of the National or State reservations shown on this map

SCALE 1:24000

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS

FOR SALE BY U S GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092

A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

Revisions shown in purple and woodland compiled in cooperation with State of Ohio agencies from aerial photographs taken 1980 and other sources. This information not field checked. Map edited 1982

Purple tint indicates extension of urban areas

ROAD CLASSIFICATION

Heavy-duty ——— Light-duty ———

Medium-duty ——— Unimproved dirt .....

U.S. Route ○ State Route

ST. MARYS, OHIO

N4030—W8422 5/7.5

1960

PHOTOREVISED 1982

DMA 4140 IR SW—SERIES V932

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DEPARTMENT OF HIGHWAYS
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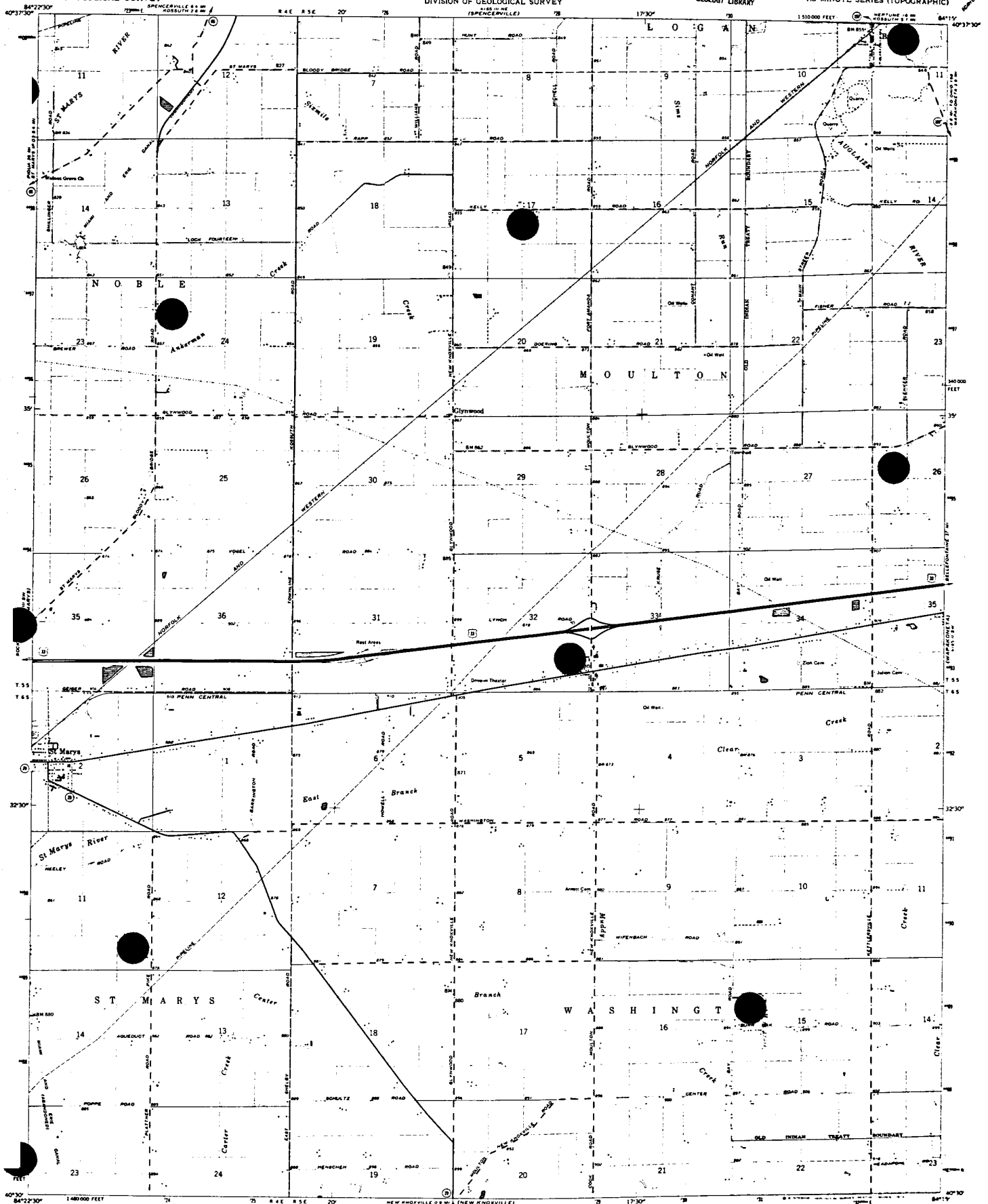

Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1959. Field check 1960

Polyconic projection. 1927 North American datum
10,000 foot grid based on Ohio coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

Entire area lies within Congress Land
Land lines based on the First Principal Meridian

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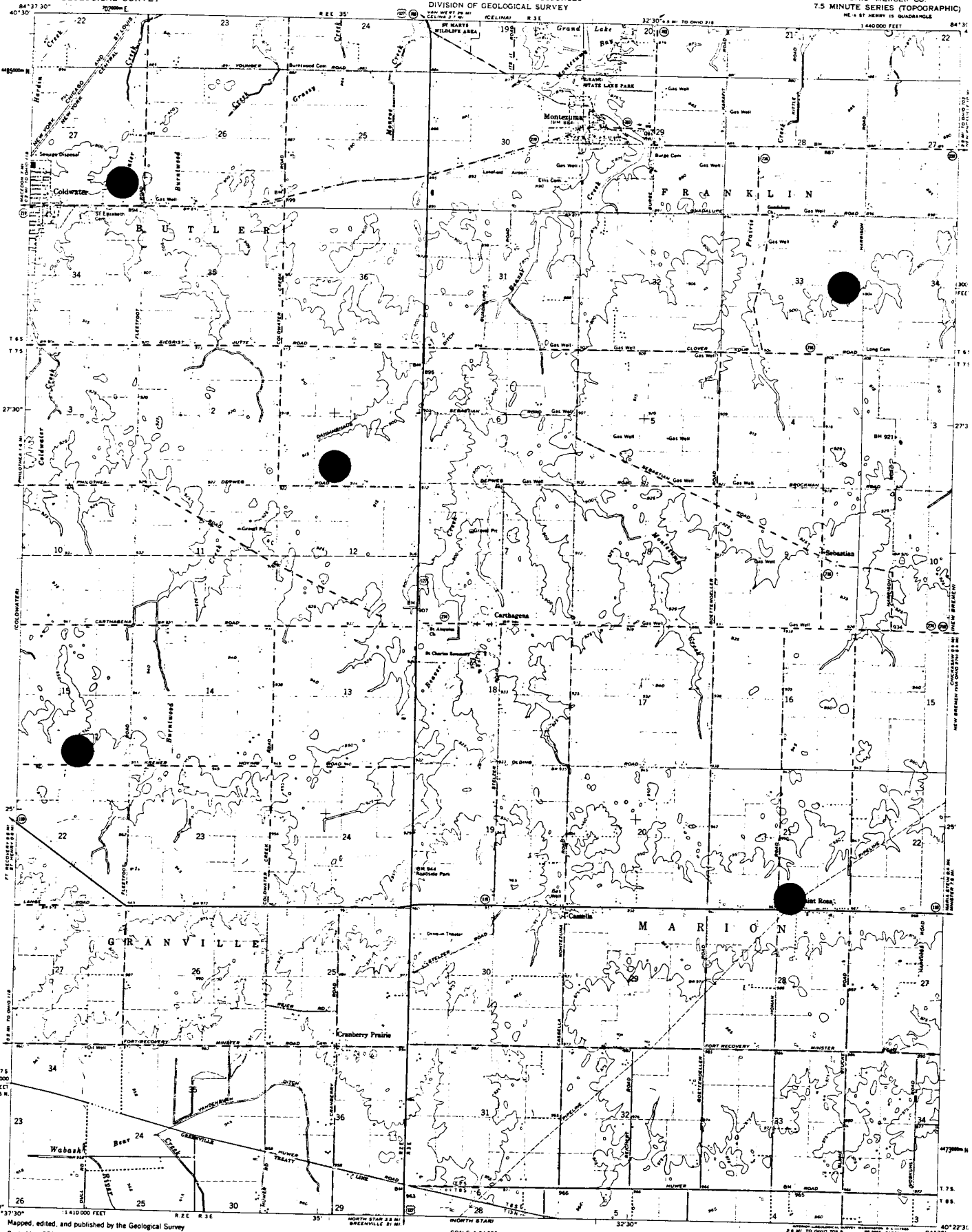
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY

MONTEZUMA QUADRANGLE
OHIO–MERCER CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)
NE/4 ST HENRY 15' QUADRANGLE



Mapped, edited, and published by the Geological Survey

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Topography by photogrammetric methods from aerial photographs taken 1959–60. Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Ohio coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks, zone 16, shown in blue

Area north of the Greenville Treaty Line lies within Congress Lands
Land lines based on the First Principal Meridian
Area south of the Greenville Treaty Line lies within the Miami River Survey
Land lines based on the Great Miami River Base

Fine red dashed lines indicate selected fence and field lines where generally visible on aerial photographs. This information is unchecked

SCALE 1:24000

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

APPROXIMATE MEAN DECLINATION 1961

ROAD CLASSIFICATION

Heavy-duty — Light-duty
Medium-duty — Unimproved dirt
U.S. Route — State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, WASHINGTON 25, D. C.
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

QUADRANGLE LOCATION

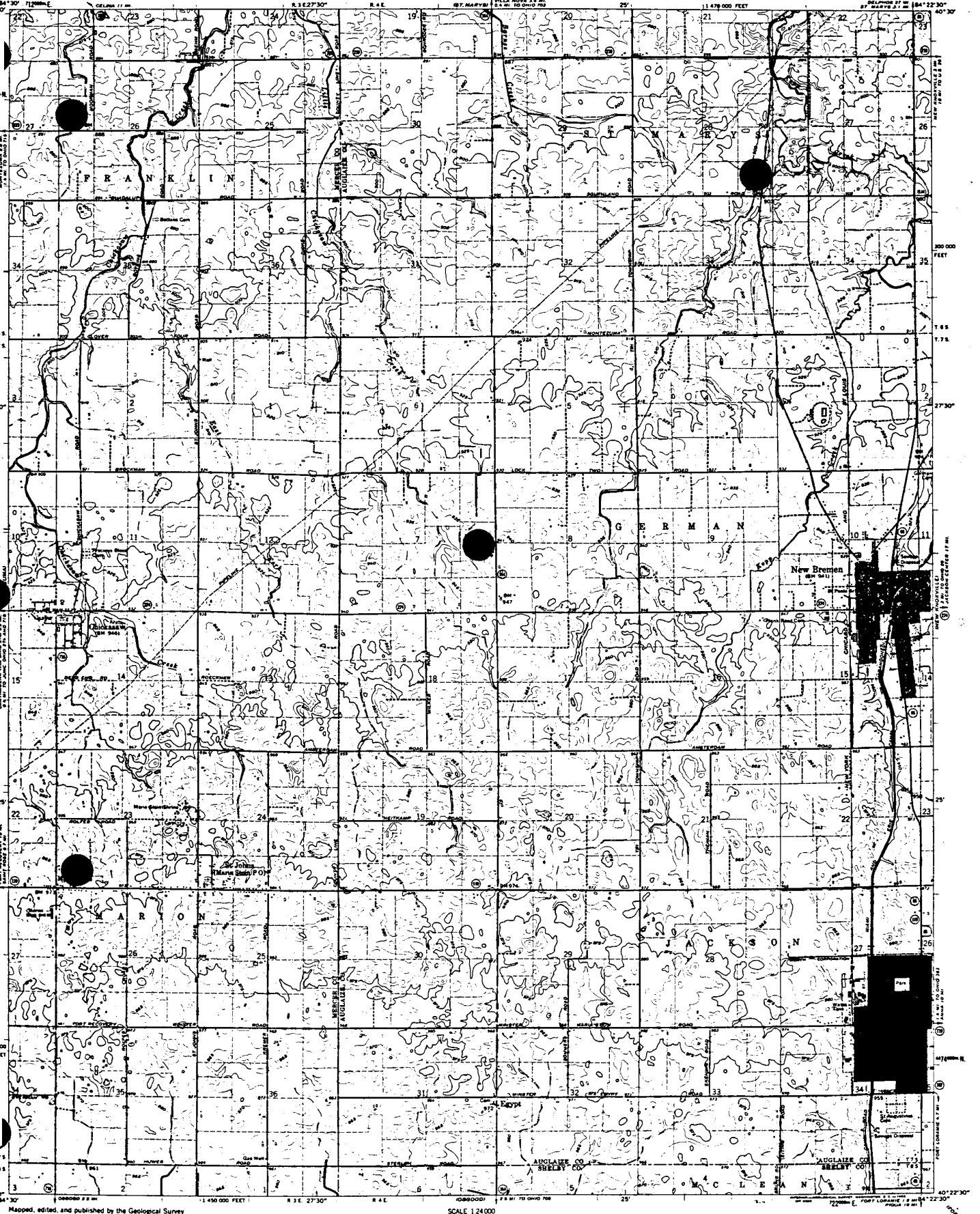
MONTEZUMA, OHIO
NE/4 ST HENRY 15' QUADRANGLE
N4022.5—W8430/7.5

1961

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF OHIO
DEPARTMENT OF HIGHWAYS
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY

NEW BREMEN QUADRANGLE
OHIO
7.5 MINUTE SERIES (TOPOGRAPHIC)



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Polyconic projection. 1927 North American datum
10,000-foot grid based on Ohio coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks

SCALE 1:24000

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

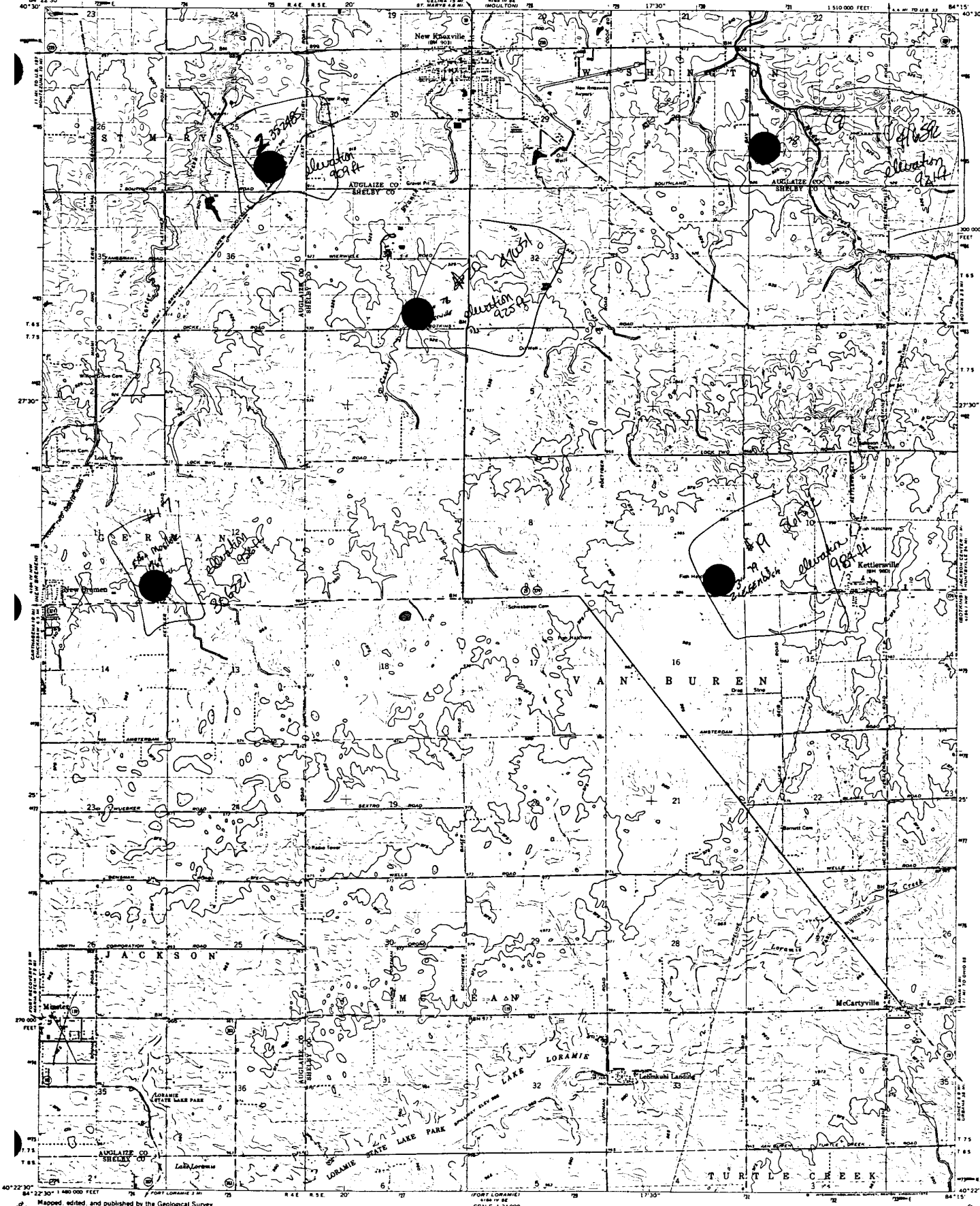
ROAD CLASSIFICATION

Heavy-duty ——— Light-duty - - -
Medium-duty ——— Unimproved dirt .....
State Route

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF GEOLOGICAL SURVEY

NEW KNOXVILLE QUADRANGLE
OHIO
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey

Control by USGS and USC&GS

Topography by photogrammetric methods from aerial photographs taken 1959-60. Field checked 1961

Polyconic projection. 1927 North American datum
10,000-foot grid based on Ohio coordinate system, north zone
1000-meter Universal Transverse Mercator grid ticks,
zone 16, shown in blue

Entire area as a whole Congress Lands

SCALE 1:24 000

CONTOUR INTERVAL 5 FEET
DATUM IS MEAN SEA LEVEL

ROAD CLASSIFICATION
Heavy-duty
Medium-duty
Light-duty
Unimproved dirt
State Route

THESIS DATA
WELL INVENTORY FORM S2B

Well no: 352485

Owner John Hoge Address:

Location: 2 miles SW of N. Knoxville on New Bremen-Knoxville Rd. 1/2 mile W on Hoge Lane

Type of Well:

date drilled:

SETTING

Grade elevation: Topographic Setting:

Aquifer:

WELL DESIGN

type of Well: use: domestic

Well Depth: 210ft screen interval:

casing length: 81ft screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 22' 10" T:
May 23' 2"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Blue Clay	0' to 47'		
Sand	47' to 64'		
Red Clay	64' to 78'		
Limestone	78'		

#3

THESIS DATA
WELL INVENTORY FORM S2B

Well no: 367569

Owner James Tiff Address: 3810 Woodbine, Cincinnati, OH

Location: South Shore Acres, Schroeder Rd

Type of Well:

date drilled: June 12, 1968

SETTING

Grade elevation: 869' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: domestic use:

Well Depth: 129' screen interval:

casing length: 65' screen length:

casing diameter: 4 1/4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 7'11" T:
May 7'11"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
clay	0-12'		
sand	12-22'		
blue clay	22-42'		
sand	42-57'		
limestone	57'=		

#4

THESIS DATA
WELL INVENTORY FORM S1B

Well no: 352472

Owner Hudson Brothers Address: RR2 St. Marys

Location: 1½ mi SE of St. Marys on St. Rt. 29, 3/4 mi S. on Plattner Rd.

Type of Well:

date drilled: Oct. 22, 1966

SETTING

Grade elevation: 876' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 188' screen interval:

casing length: 61' screen length:

casing diameter: 4¼" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 21 '5" T:

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
blue clay	0 to 46		
sand + gravel	46 to 56		
limestone	56		

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 525335

Owner James Wilker Address: 915 S. Wayne St.

Location: Along Southland Rd. 1/4 mi west of Rd C-66.

Type of Well:

date drilled: June 6, 1978

SETTING

Grade elevation: 890' Topographic Setting:

Aquifer:

WELL DESIGN

type of Well: use: domestic

Well Depth: 90' screen interval:

casing length: 51' screen length:

casing diameter: 5 1/2" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: 20' March T:

20'5" May M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Yellow Clay	0-15	gray lime	75-90
Gray clay	15-25		
Sand	25-28		
Red Clay	28-48		
Tan lime	48-60		
White lime	60-75		

(7)

THESIS DATA
WELL INVENTORY FORM S2B

Well no: 441852
Owner Mrs. Hooker Address: RR1 Oakwood, Oh
Location: Buckhead
Type of Well:
date drilled: Sept. 6, 1972

SETTING

Grade elevation: 865' Topographic Setting:
Aquifer:

WELL DESIGN

type of Well: use: domestic
Well Depth: 77' screen interval:
casing length: 61' screen length:
casing diameter: 5 5/8' screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: March 3' T:
May 3'11" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay	0-16		
blue clay	16-28		
quicksand	28-40		
blue clay	40-64		
limestone	64-		

THESIS DATA
WELL INVENTORY FORM S2B

Well no: 416592
Owner Joe Leffel Address: New Knoxville, OH
Location: Burr Oak Rd.
Type of Well:
date drilled: Feb, 15, 1972

SETTING

Grade elevation: 895 Topographic Setting:
Aquifer: limestone

WELL DESIGN

type of Well: use: domestic
Well Depth: 87' screen interval:
casing length: 71' screen length:
casing diameter: 6" screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: March 13'4" T:
May 15'8" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
Soil	0-4'		
clay + gravel	4-18'		
Sand + gravel	18-32'		
Clay + gravel	32-60'		
sand & gravel	60-71'		
lime	71'		

#9

THESIS DATA
WELL INVENTORY FORM 52B

Well no: 416592

Owner Joe Leffel Address: New Knoxville

Location: Southland Rd / Bay Rd

Type of Well:

date drilled:

SETTING

Grade elevation: 921' Topographic Setting:

Aquifer:

WELL DESIGN

type of Well use:

Well Depth: 65' screen interval:

casing length: 63' screen length:

casing diameter: 5 5/8" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 13'10" T:

May 15' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay	0-20		
blue clay	20-40		
Sand	40-47		
blue clay	47-62		
gravel	62-63		

#16

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 251577

Owner Kenneth Schuder Address: Wapakoneta, OH Rt. 3

Location: 3mi E of Moulton on Rt. 33, 1mi. on Moulton-Kellersville Rd

Type of Well:

date drilled: May 12, 1962

SETTING

Grade elevation: 894' Topographic Setting:

Aquifer:

WELL DESIGN

type of Well: use: domestic

Well Depth: 86' screen interval:

casing length: 51' screen length:

casing diameter: 4 1/4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 36'4 T:
May 35'10"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
blue clay	0-46'		
Sand & gravel	46-47'		
like	47'		

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 561574

Owner Dusty Neddermann Address: 430½ W Spring, St. Marys, OH

Location: Along Kelly Rd, ½ mi W of Moulton-Ft. Amanda Rd.

Type of Well:

date drilled: Oct 1, 1979

SETTING

Grade elevation: 854' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 120' screen interval:

casing length: 44' screen length:

casing diameter: 6" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 18'9" T:
May 20'2" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
clay, yellow	0-15'	gray lime	95-120'
gray clay	15-25'		
red clay	25-33'		
broken lime	33-36'		
tan lime	36-45'		
white lime	45-95'		

#12

THESIS DATA
WELL INVENTORY FORM 52B

Well no: 652877

Owner Kentner Address: R.1 Box 97, New Knoxville, OH

Location: Along County Rd 33A, 1/2 mi W of Moulton-Platter Rd.

Type of Well:

date drilled: Aug. 30, 1984

SETTING

Grade elevation: 893' Topographic Setting:

Aquifer:

WELL DESIGN

type of Well: use:

Well Depth: 119' screen interval:

casing length: 62' screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 31 3" T:
May 32 8" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-12'		
gray clay	12-45'		
red clay	45-57'		
gray lime	57-65'		
tan lime	65-75'		
gray lime	75-119'		

#13

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 612506

Owner Sam Kellermeyer Address:

Location: Main St. Buckland, Ohio

Type of Well:

date drilled: Nov 3, 1984

SETTING

Grade elevation: 879' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 111' screen interval:

casing length: 53' screen length:

casing diameter: 6" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: 26'9" horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 26'9" T:
May 26'8"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
clay	0-14'		
Sandy clay	14-47'		
Sand & gravel	47-52'		
lime	52-111'		

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 367564

Owner Gerald Hoerie Address: 719 Oil St, St. Marys, OH

Location: 1 1/2 mi N of St. Marys on 66A.

Type of Well:

date drilled: April 29, 1968

SETTING

Grade elevation: 873' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 85' screen interval:

casing length: 60' screen length:

casing diameter: 4 1/4' screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 21 '5" T:
May 21 '1" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
clay	0-12		
blue clay	12-40		
Sand	40-49		
lime	49-85		

THESIS DATA
WELL INVENTORY FORM s2B

Well no: 608671

Owner Mr. Zweibel Address: Rt. 1, St. Marys, OH

Location: On 66A, North of St. Marys

Type of Well:

date drilled: Sept 8, 1981

SETTING

Grade elevation: 879' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 105' screen interval:

casing length: 34' screen length:

casing diameter: 3" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 25 '1" T:

May 26 '11" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay yellow	0-18'		
clay gray	18-29'		
lime gray	29-40'		
lime white	40-75'		
lime gray	75-105'		

#17

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 306221

Owner Elton Moeller Address: RR1, New Bremen

Location: 1 mile of New Bremen on 274

Type of Well:

date drilled: June 4, 1964

SETTING

Grade elevation: 956' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 98' screen interval:

casing length: 65' screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 52'6" T:

May 53' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
blue clay	0-27'		
Sand	27-34'		
blue clay	34-52		
limestone	52-		

THESIS DATA
WELL INVENTORY FORM SLB

#18

Well no: 632357

Owner Albert Dircksen Address: St Rt 364 NB

Location: St Rt 364, 1/2mi N of 27

Type of Well:

date drilled: Oct. 23, 1985

SETTING

Grade elevation: 940' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 219' screen interval:

casing length: 155' screen length:

casing diameter: 5" I.D. screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 40'10" T:

May 15th 41' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay yell	0-12'		
clay gray	12-50		
gray red	50-110'		
lime white	110-151'		
gray	151-185'		
	185-		

#19

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 561572

Owner Thomas Ziegenbusch Address: 7811 SR 274, Anna, OH

Location: St. Rt. 274, 1/4 mi W of Lucas-Geib Rd.

Type of Well:

date drilled: Sept. 29, 1979

SETTING

Grade elevation: 984' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 180' screen interval:

casing length: 124' screen length:

casing diameter: 6" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 51'3" T:

May 52' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay yellow	0-20'	gray lime	118-125'
clay gray	20-80'	White lime	125-165
clay red	80-93'	gray lime	165-
red clay + boulders	93-100'		
red clay	100-110'		
red clay + broken lime	110-118'		

#20

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 470051

Owner Wierwille Address: R.1 New Knoxville, OH

Location: 1/8 mi W of 29 on Botkins Rd.

Type of Well:

date drilled: April 20, 1974

SETTING

Grade elevation: 909.6 Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 91" screen interval:

casing length: 90' screen length:

casing diameter: 5 5/8" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 15' 3" T:
May 16'

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Red clay	0-15'		
Gray clay	15-55'		
muddy gravel	55-90'		
lime	90-91'		

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 328381

Owner Bruggeman Address: Maria Stein, Ott.

Location: On Rt. 716, Junction 119

Type of Well:

date drilled: Sept. 10, 1965

SETTING

Grade elevation: 965' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 112' screen interval:

casing length: 87' screen length:

casing diameter: 4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 33'6" T:
May 34' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
yellow clay	0-15'	Tan lime	87-95'
Sand	15-18'	gray lime	95-112'
gray clay	18-40'		
Sand	40-45'		
Gray clay	45-75'		
Red clay	75-87'		

#22

THESIS DATA
WELL INVENTORY FORM S2D

Well no: 153967

Owner Albert Moeller Address: St. Rosa, Okla

Location: 1/4 mi W of St. Rosa on 119

Type of Well:

date drilled: June 28, 1955

SETTING

Grade elevation: 964' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 159' screen interval:

casing length: 115' screen length:

casing diameter: 4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 35'5" T:

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-20'	gray lime	150'-159'
gray clay	20-80'		
Sand	80-95'		
red clay	95-106'		
limestone	106-115'		
white lime	115-150'		

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 571276

Owner Art Eyink Address: 6929 SR 219, Celina, OH

Location: Harrison Rd, 1/2 mi N of Clover Four Rd.

Type of Well:

date drilled: July 8, 1980

SETTING

Grade elevation: 905' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 180' screen interval:

casing length: 140' screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 16' 4" T:
May 17' 1" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-15'		
gray clay	15-100'		
red clay	100-135'		
white lime	135-161'		
gray lime	161-180'		

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 139047

Owner West Chio Fish+Game Address:

Location: 6mi No. of St Marys on SR 116, 1/2 mi E of Easterly

Type of Well:

date drilled: March 22, 1958

SETTING

Grade elevation: 839' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 80' screen interval:

casing length: 26' screen length:

casing diameter: 4 1/4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 18 1/2" T:

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
blue clay	0-19'		
Sand & gravel	19-24'		
limestone	24-80'		

THESIS DATA
WELL INVENTORY FORM SAB

Well no: 65K65
Owner Harold Dilbone Address:
Location: 3mi N of St. Marys, on Rt 116
Type of Well:
date drilled: Oct. 4, 1984

SETTING

Grade elevation: 874' Topographic Setting:
Aquifer: limestone

WELL DESIGN

type of Well: use: domestic
Well Depth: 94' screen interval:
casing length: 67' screen length:
casing diameter: 6" screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: May 25 '6" T:
May 25 '11" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
brown clay	0-8'		
blue clay	8-36'		
limestone	36-94'		

#38

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 480485

Owner Ron Niekamp Address: Rt. 6, Celina

Location: St. Rt. 219A 1/16 mi N of Moorman Rd

Type of Well:

date drilled: April 7, 1975

SETTING

Grade elevation: 888' Topographic Setting:

Aquifer:

WELL DESIGN

type of Well use:

Well Depth 110' screen interval:

casing length: 81' screen length:

casing diameter: 8 5 1/2" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: May 9" T:
(1 foot above surface in 1975)
May 1'

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-10'	gray lime	83'-94'
gray clay	10-13'	brown lime	94'-98'
fine sand + gravel	13'-16'	gray lime	98-110'
gray clay	16-66'		
fine sand	66-68'		
gray clay	68-83'		

#40

THESIS DATA
WELL INVENTORY FORM S1B

Well no: 316115

Owner Paul Fischer Address: 121 Pinehurst, Sidney

Location: Rt. 703 South of Lake

Type of Well:

date drilled: April 22, 1964

SETTING

Grade elevation: 870' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 88' screen interval:

casing length: 73' screen length:

casing diameter: 4 1/4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 3'9" T:
May 4'5" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
top soil	0-3'		
red clay	3-20'		
gravel	20-73'		
limestone	73-80'		

#42

THESIS DATA
WELL INVENTORY FORM 52B

Well no: 597961

Owner Earl Mears Address:

Location: 127-29E to Karafit Rd, N, 4mi on left

Type of Well:

date drilled: Oct, 1980

SETTING

Grade elevation: 874 Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 100' screen interval:

casing length: 57' screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 14 5" T:
may 15 2" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
clay	0-27'	limestone	54-61'
hardpan	27-36'	silty clay	61-67.5'
clay	36-40	limestone	67.5-100'
sand	40-52.5'		
fine gravel	52.5-53		
sand	53-54		

THESIS DATA
WELL INVENTORY FORM SIB

Well no: 493870

Owner Ray Wuebker Address:

Location: Along Depweg Rd, 1/4 mi E of Coldwater Creek Rd.

Type of Well:

date drilled: Jan 30, 1976

SETTING

Grade elevation: 923' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 165' screen interval:

casing length: 134' screen length:

casing diameter: 5 1/2" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 31 '4" T:

May 32' M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-14'		
gray clay	14-84'		
red clay	84-130'		
lime, gray	130-135'		

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 5014116

Owner Ray Wiebker Address:

Location: Along Bluffstem Rd. 1/4 mi N of 29.

Type of Well:

date drilled: July 20, 1976

SETTING

Grade elevation: 897' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 180' screen interval:

casing length: 132' screen length:

casing diameter: 5½" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 36'4" T:

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-15'	white lime	120-151'
gray clay	15-38'	gray lime	151-180'
sand	38-40'		
gray clay	40-65'		
lime	65-66'		
red clay	66-120'		

#45

THESIS DATA
WELL INVENTORY FORM SID

Well no: 632374

Owner Ken Hemmelgarn Address: 5081 St. Anthony Rd, Celina

Location: On St. Anthony Rd, 1/4 mi E of Fleetfoot

Type of Well:

date drilled: Dec. 7, 1985

SETTING

Grade elevation: 883' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 79' screen interval:

casing length: 49' screen length:

casing diameter: 6" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level March 19'11" T:
May 20'5"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
yellow clay	0-10'		
gray clay	10-45'		
lime white gray lime	45-70'		
	70-79'		

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THESIS DATA
WELL INVENTORY FORM SIB

Well no: 78059

Owner Cleon Brown Address: Rt. 1, Celina

Location: 3¼ mi W of Celina on Graham Pike

Type of Well:

date drilled: April, 9, 1951

SETTING

Grade elevation: 865' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 91' screen interval:

casing length: 43' screen length:

casing diameter: 4 1/4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 16 '41 T:
May 17'

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay	0-21'		
Clay & sand	21-34'		
Sand	34-41'		
gray clay	41-43'		
& limestone	43-91'		

THESIS DATA
WELL INVENTORY FORM S2B

Well no: 367249
Owner Richard Birt Address: R4, Celina, OH
Location: 1½ mi W of Neptune on Rice Rd.
Type of Well:
date drilled: May 25, 1972

SETTING

Grade elevation: 851' Topographic Setting:
Aquifer: limestone

WELL DESIGN

type of Well: use: domestic
Well Depth: 97' screen interval:
casing length: 43½' screen length:
casing diameter: 5" screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: March 1951 T:
May 2012 M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
clay	0-10'		
blue clay	10-35'		
sand & gravel	35-40'		
sand	40-42'		
limestone	42-97'		

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 621675

Owner West Ohio Branch Campus Address:

Location: 7600 Rt. 703, Celina

Type of Well:

date drilled: July 15, 1982

SETTING

Grade elevation: 885 Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 116' screen interval:

casing length: 103' screen length:

casing diameter: 4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 40'2" T:

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
brown clay	0-12½'		
gray clay	12½-18½'		
lime	18½-79'		
gray clay	79-89'		
lime	89-100'		
	100-116'		

#50

THESIS DATA
WELL INVENTORY FORM 52B

Well no: 632372

Owner Mike Hasenjager Address: 8539 Old Town Rd, Celina

Location:

Type of Well:

date drilled: Dec, 5, 1985

SETTING

Grade elevation: 885' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 119' screen interval:

casing length: 54' screen length:

casing diameter: 5" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: Mar a 37'3" T:
may 38'6"

M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cc
yellow clay	0-10'		
gray clay	10-43'		
broken lime	43-49'		
Tan lime	49-55'		
white lime	55'-100'		
gray lime	100-119'		

57

THESIS DATA
WELL INVENTORY FORM SIB

Well no: SO1414
Owner Gerald Stachler Address: Rt. 1 St. Henry, OH
Location: Along Kremer-Hoying Rd, 1/2 mi. E of 118.
Type of Well:
date drilled: July 13, 1976

SETTING

Grade elevation: 957' Topographic Setting:
Aquifer:

WELL DESIGN

type of Well: use:
Well Depth: 210' screen interval:
casing length: 167' screen length:
casing diameter: 5 1/2" screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: March 3 4 14" T:
M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0-15'	boulder	100-101'
gray clay	15-25'	red clay	101-160'
fine sand	25-26'	broken lime	160-163'
gray clay	66-55'	limestone	163-210'
fine sand	55-70'		
gray clay	70-100'		

#53

THESIS DATA
WELL INVENTORY FORM 52B

Well no: 217139

Owner Robert Marten Address: Rt. 5, Celina

Location: On Monroe Rd, 500' West of Rt. 127

Type of Well:

date drilled: May 22, 1974

SETTING

Grade elevation: 860' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 143' screen interval:

casing length: 62' screen length:

casing diameter: 4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 23' T:

May 3'5" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay	0-62'		
lime	62-143'		

#54

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 392515

Owner Richard Spier Address:

Location: Sandy Beach, St. Marys

Type of Well:

date drilled: June 16, 1970

SETTING

Grade elevation: 889' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 155' screen interval:

casing length: 97' screen length:

casing diameter: 5 5/8" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 20 '11 T:

May 20 '5" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
blue clay	0-70'		
quicksand	70-81'		
hardpan	81-95'		
limestone	95-155'		

#55

THESIS DATA
WELL INVENTORY FORM SLB

Well no: 600139
Owner Utah McIntosh Address: 820 S. Echo, Celina.
Location: Alongmud Pike, 1/4 mi E. of Fleetfoot
Type of Well:
date drilled: July 14, 1981

SETTING

Grade elevation: 897' Topographic Setting:
Aquifer: limestone

WELL DESIGN

type of Well: use: domestic
Well Depth: 130' screen interval:
casing length: 70' screen length:
casing diameter: 5" screen diameter:
gravel pack: gravel pack diameter:
type of pump: capacity:
yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:
Specific capacity: S:
Static water level: March 49'2" T:
May 51" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
yellow clay	0 - 12'		
gray clay	12 - 50'		
red clay	56 - 65'		
top lime	65 - 75'		
white lime	75 - 110'		
gray lime	110 - 130		

THESIS DATA
WELL INVENTORY FORM SID

#60

Well no: 232352

Owner William Gottschalk Address: RR 2, St. Marys, OH

Location: St. Rt. 33, N of St. Marys

Type of Well:

date drilled: Nov. 13, 1958

SETTING

Grade elevation: 885' Topographic Setting:

Aquifer: limestone

WELL DESIGN

type of Well: use: domestic

Well Depth: 107' screen interval:

casing length: 60' screen length:

casing diameter: 4" screen diameter:

gravel pack: gravel pack diameter:

type of pump: capacity:

yield: horsepower:

HYDROGEOLOGIC DATA

Aquifer tests: K:

Specific capacity: S:

Static water level: March 26 5" T:

May 27" M:

STRATIGRAPHY

Formation	Depth	Formation cont'd	depth cont'd
Clay	0-59		
limestone	59-107		